UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

30 OCT 1991

In Reply
Refer To: W-5-1

Mr. Steven J. Costa
CH2M HILL
6425 Christie Avenue, Suite 500
Emeryville, CA 94608

Dear Mr. Costa:

Enclosed is a copy of comments from Dr. Steven J. Wright, University of Michigan, regarding the mixing zone application and feasibility study conducted by CH2M HILL. Dr. Wright, who conducted this review at our request, expressed various concerns about the mixing zone analysis.

Dr. Wright's comments must be adequately addressed before we can approve your application for a zone of mixing. Because of the urgency of this matter, please Fax us your initial responses as soon as possible. Please also indicate any additional analysis you intend to perform and how long you expect that analysis to take.

There are some other issues that warrant your attention:

1) American Samoa Water Quality Standards 24.0208 (b) (5) and (6) expressly state that toxic substances shall not be allowed within the mixing zone. Although the applications from the canneries report only total ammonia, one can deduce from the pH level of the effluent that the un-ionized portion far exceeds EPA's water quality criteria for un-ionized ammonia in marine waters. (See attachment 1).

2) I am unable to locate your proposed mass limits, based on your mixing zone analysis, for Total Nitrogen and Total Phosphorous for each cannery under current and future production. Because the canneries have expressed a desire to be given individual limits, it is also essential to know the percentage of total nutrients each is willing to assume.

Your prompt reply is appreciated. I can be reached at (415) 744-1912 or by Fax (415) 744-1873.

Sincerely yours,

Doug Liden,
Environmental Engineer
Permits Issuance Section

Enclosures

cc: Sheila Wiegman/ASEPA
Pati Faiai/ASEPA
Norman Lovelace/USEPA
Norman Wei/Star-Kist
Jim Cox/Van Camp

Attachment 1

Marine Waters Nat'l Criteria Fed. Register

NATIONAL CRITERIA

The procedures described in the "Guidelines for Deriving Numer National Water Quality Criteria for the Protection of Aquatic Organ Their Uses" indicate that, except possibly where a locally important species is very sensitive, saltwater aquatic organisms should not be affected unacceptably if the four-day average concentration of un-ionized ammonia does not exceed 0.035 mg/L more than once every three years on the average and if the one-hour average concentration does not exceed 0.233 mg/L more than once every three years on the average. Because sensitive saltwater animals appear to have a narrow range of acute susceptibilities to ammonia, this criterion will probably be as protective as intended only when the magnitudes and/or durations of excursions are appropriately small.

Criteria concentrations based on total ammonia for the pH range of 7.0 to 9.0, temperature range of 0 to 35°C, and salinities of 10, 20 and 30 g/kg are provided in Text Tables 2 and 3. These values were calculated by Hampson's (1977) program of Whitfield's (1974) model for hydrolysis of ammonium ions in sea water.

Three years is the Agency's best scientific judgment of the average amount of time aquatic ecosystems should be provided between excursions. The ability of ecosystems to recover differ greatly.

Site-specific criteria may be established if adequate justification is provided. This site-specific criterion may include not only site-specific criteria concentrations, and mixing zone considerations (U.S. EPA, 1983b), but also site-specific durations of averaging periods and site-specific frequencies of allowed exceedences (U.S. EPA 1985b).